Exhibit K

Control Number :

CRITEO_GOOGLELIT_0000
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All Custodians :   Criteo SA

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Date/Time Created :   5/17/2023 5:00 AM

Date/Time Saved :

Date/Time Last Modified : 5/17/2023 12:00 AM

File Name :

ProductAnalytics-Unde
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Non-Second-Price-Bidd
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(NSPB)-170523-085934.
pdf

Understanding our Non-Second-Price-Bidder (NSPB)

Historical 2nd-Price auctions are over

Classic Second-price auctions, which were the standard 3 years ago, are becoming more and more rare.

In order to increase their short-term profit and with the apparition of Header Bidding, publishers and platforms RTB have moved to different and more complicated auction mechanisms:

- First price auctions (whose share of voice have constantly increased for 3 years and which currently represent ▮ of our Spend)
- Usage of Clearing Prices (or Floors) to guarantee a minimal spend
- Priority Rules (Sponsorship, Google First Look, PMPs)

Evolution of 1st Price

What should we bid?

For a given estimation of the value of a display opportunity, the optimal bidding strategy depends on the auction type.

In an environment switching from 2nd price to 1st price, Criteo had to adapt its bidding strategy.
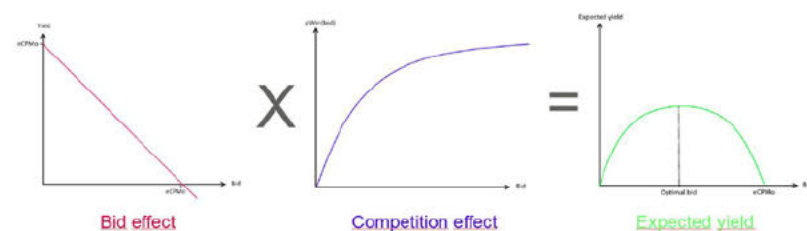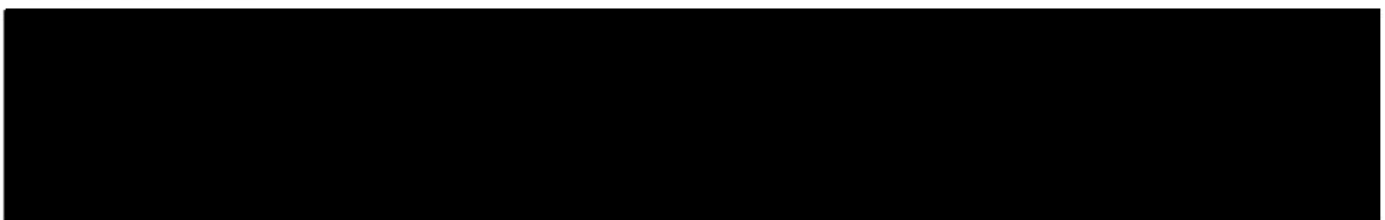
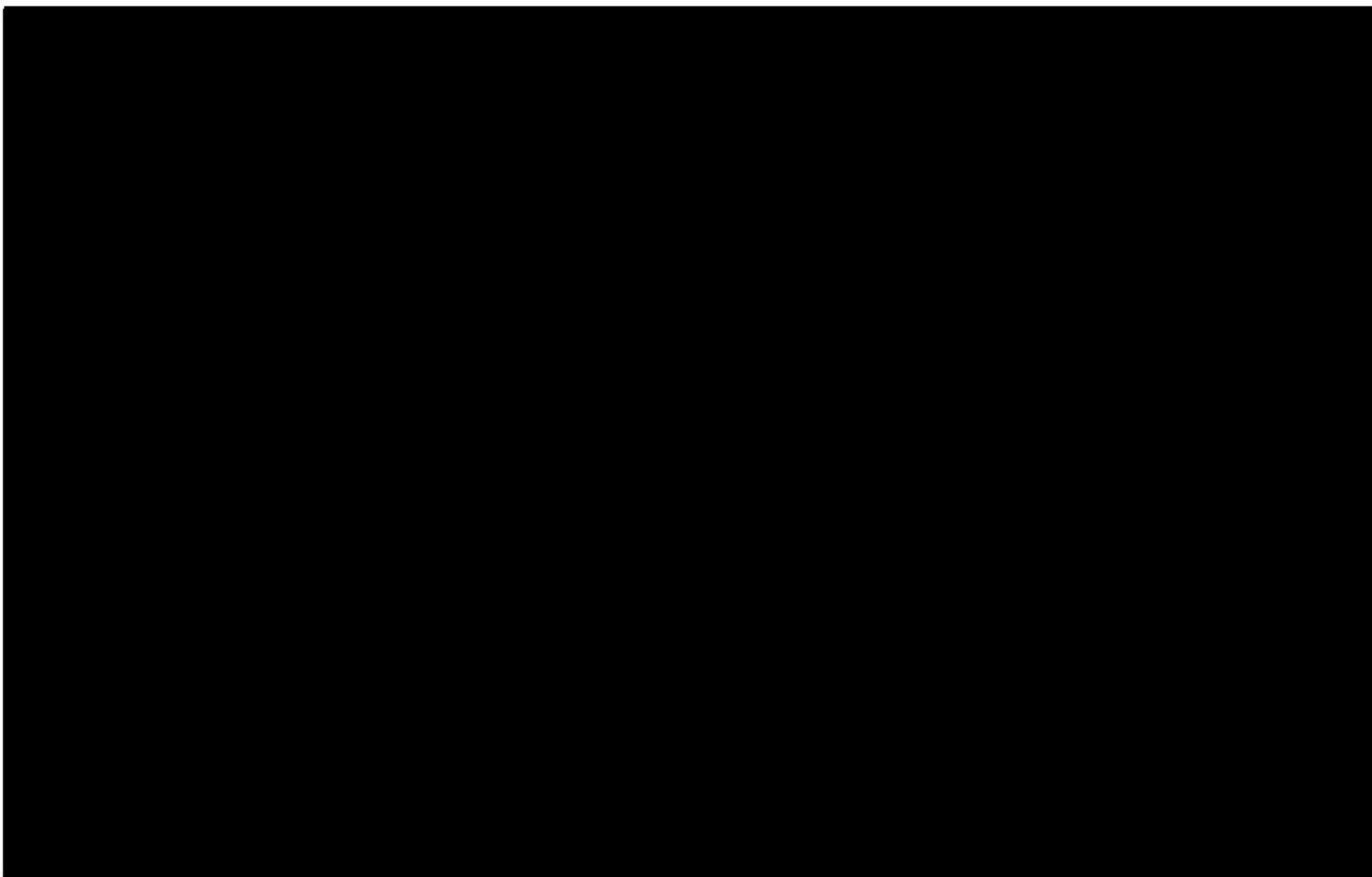Let's consider a display opportunity, for which the estimated value is equal to:

$$V = eCPM \times bidRando_{user} \times (1 - MinMargin)$$

We want to bid in order to maximize our expected profit, or expected Yield.

$$Profit(b) = pWin(b) \times (V - cost(b))$$

1st Price and 2nd Price auctions

Bid effect X Competition effect = Expected yield

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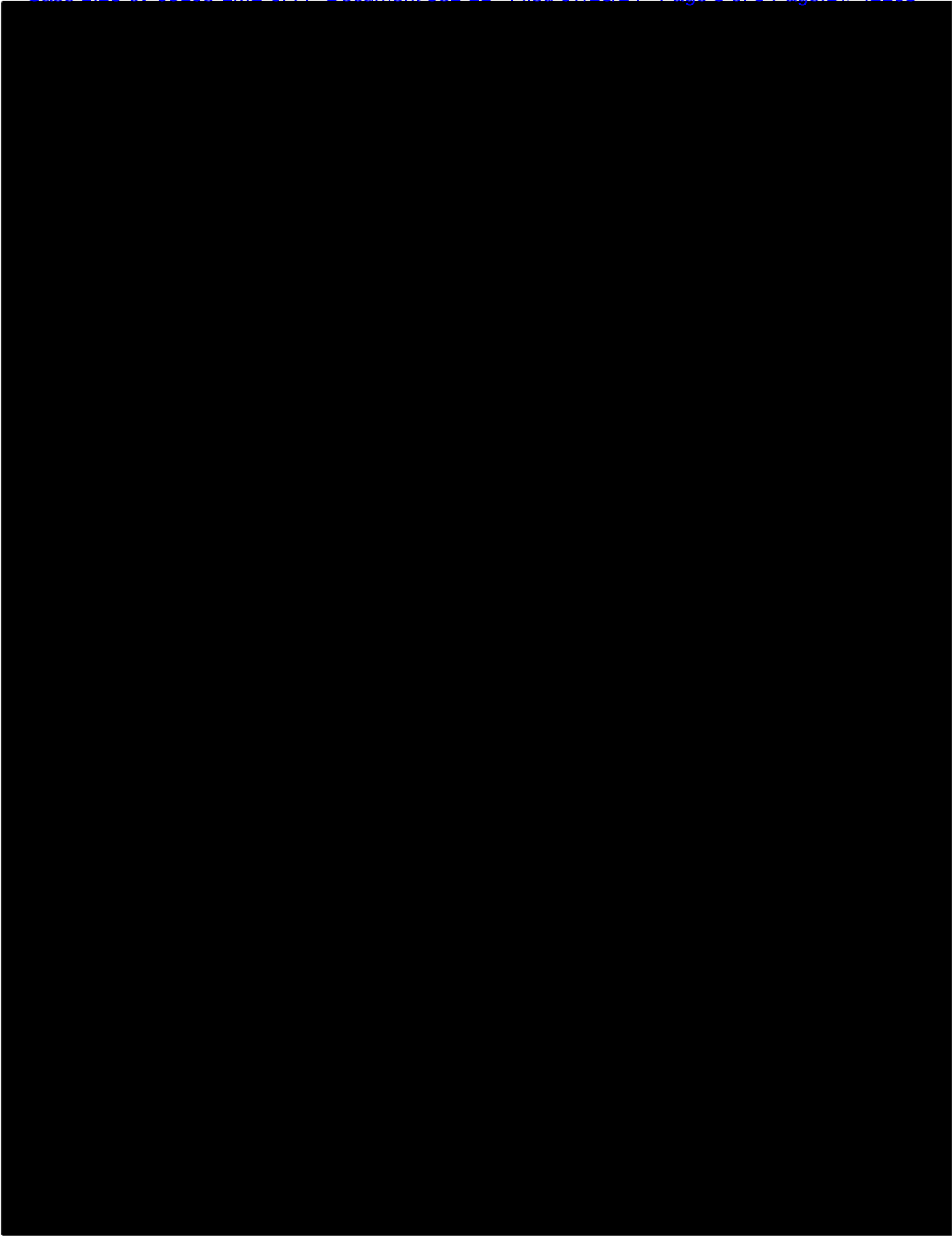
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How does the Non-Second-Price-Bidder work?

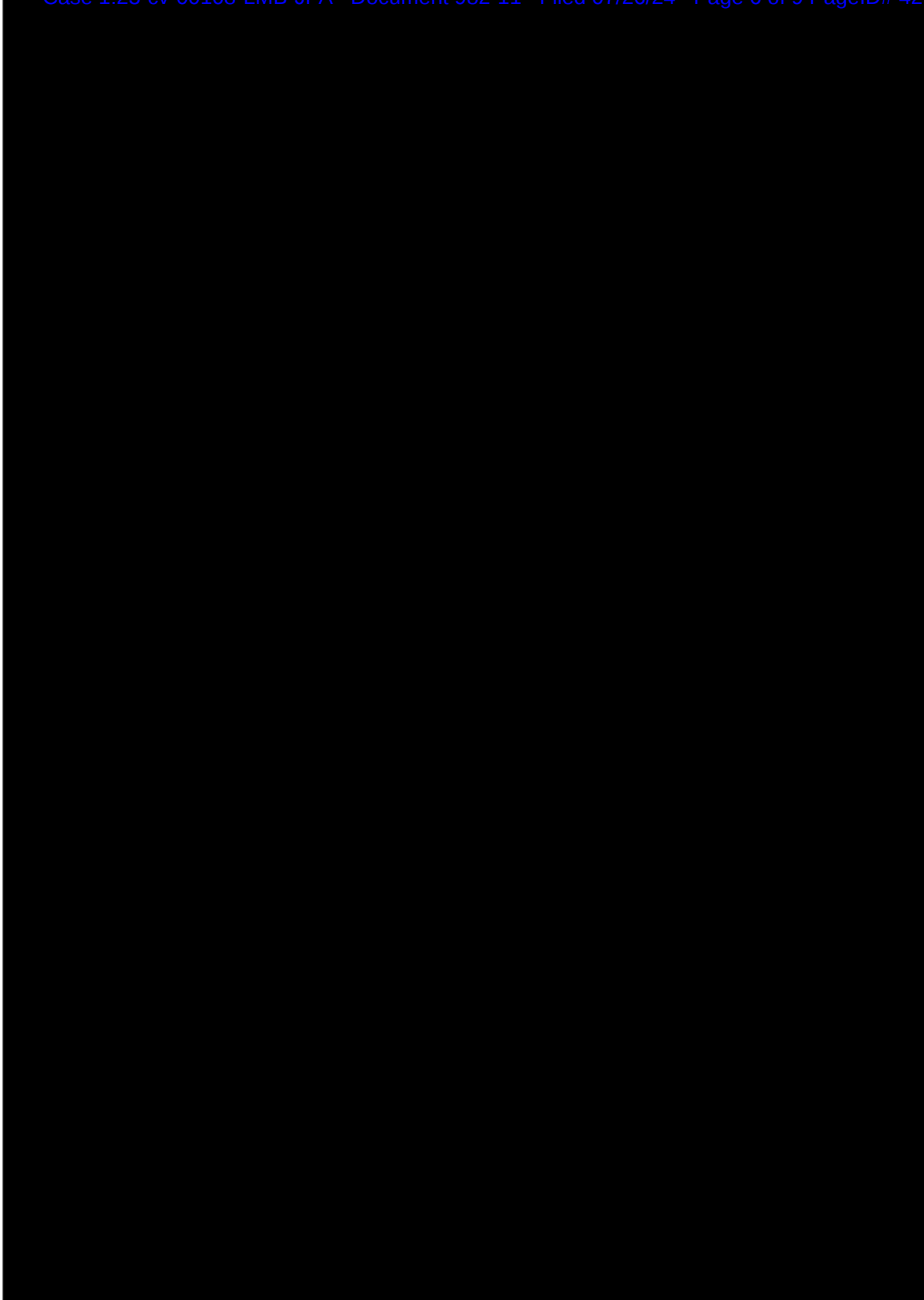At TLAs Level, the computation of the optimal bid is done in arbitrage, in a speciffic library called External Bidder.

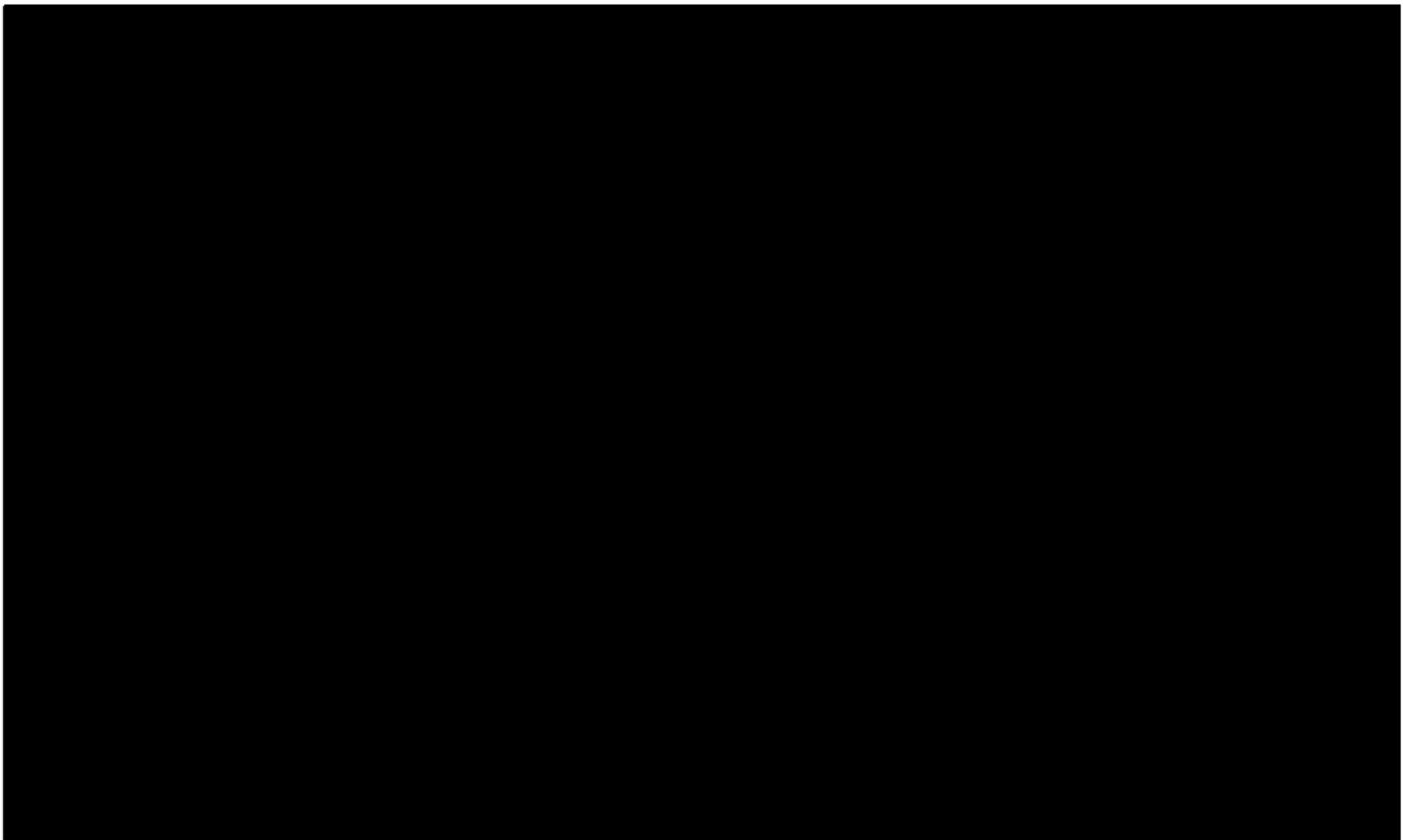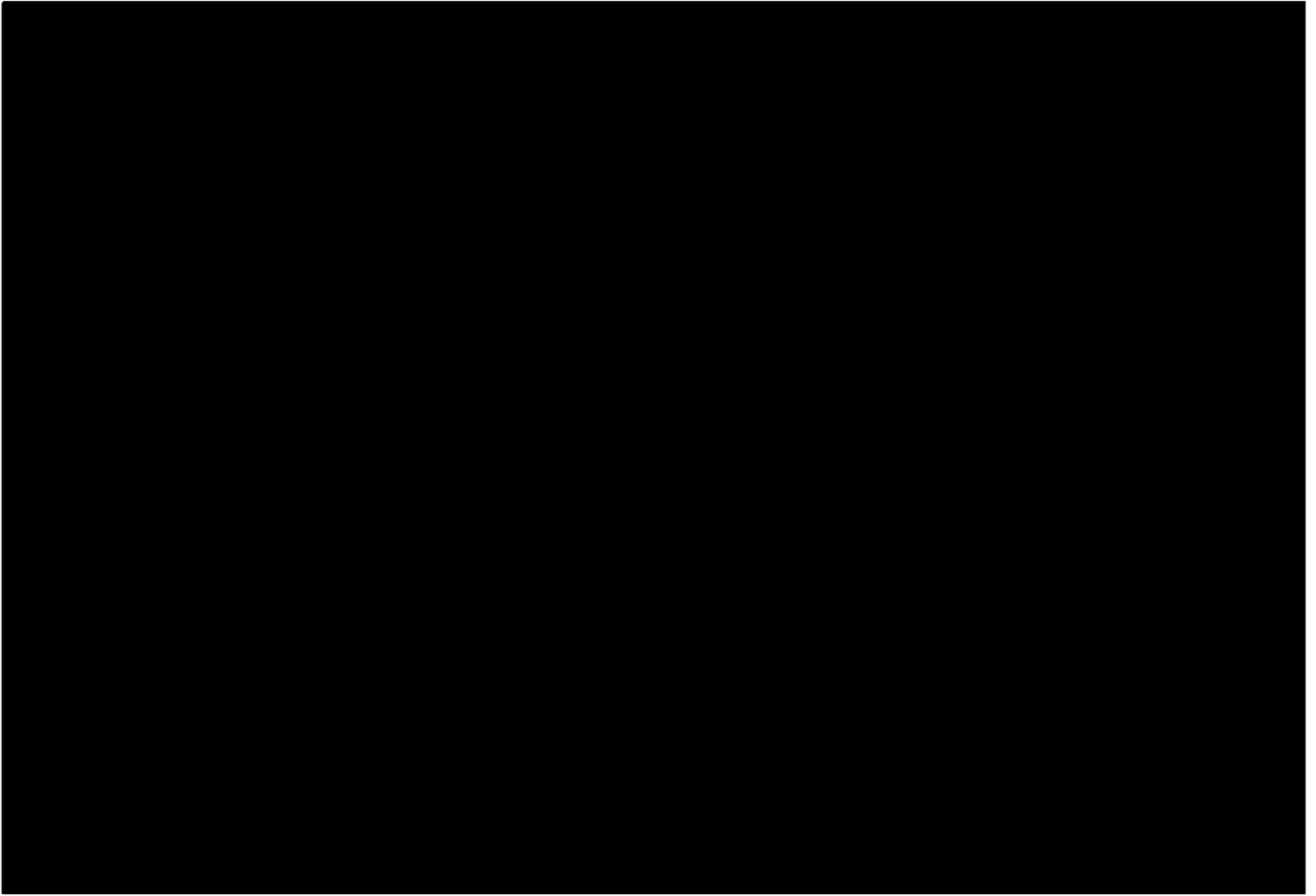SSP ⟶ RTB ⟶ Arbitrage ⟶ RTB - - - - - ▸

The actual value received by the NSPB is the product of:

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Improving NSPB:

1. **Gather insights**
Select new features or scope that could be integrated or taken into account in the models (for instance variables that could impact a winning rate curve, or an auction model).
These are usually business insights, and can be provided by local teams

2. **Offline Tests: Do we improve the models?**
The goal of this part is to see that our prediction models (particularly pWin one) are improved by this change. In other words, are we able to better predict a display considering that we participate? This analysis is purely offline, based on past data.
Key Metrics: Log Likelyhood (LLH), RSME

3. **Online Tests: Does it bring value to Criteo?**
When an improvement looks positive offline, we run an ABTest, and check whether we improve key publisher Metrics (both Short-term and Long-term).
The most important metric is the "Subsidies Aware Long-Term Yield (or **SALTY**).

More details here: